



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Doron LANCET et al
Serial Number: 511,278/10
Filed: October 22, 2004
For: POLYMORPHIC OLFACTORY RECEPTOR GENES AND ARRAYS, KITS AND
METHODS UTILIZING INFORMATION DERIVED THEREFROM FOR
GENETIC TYPING OF INDIVIDUALS

Atty. Docket: 28364
Art Unit: 1634
Examiner: Carla J. MYERS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF DORON LANCET UNDER 37 CFR 1.132

I am presently employed Professor of Molecular Genetics at The Weizmann Institute of Science in Rehovot, Israel. I received my Ph.D. degree from Department of Chemical Immunology, The Weizmann Institute of Science, Rehovot, Israel. In 1978 and worked as a post-doctoral fellow at The Harvard University from 1978 to 1980 an. The Yale University School of Medicine from 1980 to 1981. Since completion of my postdoctoral work I have been employed at The Weizmann Institute of Science where I currently head the Crown Human Genome Center and am the Ralph and Lois Silver Professor of Human Genomics.

My research focuses on human molecular genetics, including the molecular genetics of olfactory receptors. Since the beginning of my career, I have published a number of scientific articles in highly regarded journals and books, and have presented my achievements at many international scientific conferences.

I am the inventor of the subject matter claimed in the above-referenced U.S. patent application.

I have read the Official action issued with respect to the above-identified application.

In this Official action, the Examiner has formulated the following rejections:

Claims 23-26, 28 and 29 are rejected under 35 USC § 101 as lacking utility;

Claims 23-26, 28 and 29 are rejected under 35 USC § 112, first paragraph, as lacking enablement and sufficient written description.

Appendix A enclosed herewith clearly demonstrates, while using the teachings of the instant application, that the C to T mutation at position 379 of OR11H7P (SEQ ID No.: 81) is linked to hypersomia to isovaleric acid both in an *in vivo* test of olfaction in human subjects and in an *in situ* assay of biological activity conducted in *Xenopus laevis* oocytes. These



INVENTOR'S CURRICULUM VITAE

Name: Doron LANCET

Current Position: Head, Crown Human Genome Center
The Ralph and Lois Silver Professor of Human Genomics
Department of Molecular Genetics
The Weizmann Institute of Science, Rehovot 76100, Israel

Education

1967-1970 B.Sc. degree in Chemistry and Physics at the Hebrew University, Jerusalem, Israel, 1970.
1971-1972 Studies towards M.Sc. at the Feinberg Graduate School of the Weizmann Institute of Science, Rehovot, Israel. Transferred directly to a Ph.D. program.
1973-1978 Studies and work towards Ph.D. at the Department of Chemical Immunology, The Weizmann Institute of Science, Rehovot, Israel. Ph.D. degree in 1978.
Advisors: Dr. Israel Pecht and Dr. Michael Sela.
Title: "Kinetic and thermodynamic studies of hapten induced conformational changes in immunoglobulins".
1978-1980 Post Doctoral training with Dr. Jack L. Strominger, Harvard University.
Subject: Structure, function and evolution of Human Histocompatibility Antigens (HLA).
1980-1981 Post Doctoral training with Dr. Gordon M. Shepherd, Yale University School of Medicine. Subject: Activity mapping and neuronal modeling in the vertebrate olfactory pathway.

Recent Positions

1993-1997 Professor (tenured), the Department of Membrane Research and Biophysics, The Weizmann Institute of Science, Rehovot. Subject: Molecular Biology, genetics and psychophysics of animal and human chemoreception.
1995-1997 Head, Department of Membrane Research & Biophysics.
1997- Professor, Department of Molecular Genetics: Molecular Genomics and evolution of human olfactory receptors, Genome analysis and bioinformatics, prebiotic evolution.
1997- Head, Crown Human Genome Center, The Weizmann Institute of Science.

Recent Academic Honors

1989-1990 Eleanor Roosevelt Fellowship of the International Union against Cancer.
1996 Elected member, European Molecular Biology Organization (EMBO).
1998 The Frank Allison Linville's 1998 R.H. Wright Award in Olfactory Research
2000- Incumbent of the Ralph and Lois Silver Professor of Human Genomics

Funding sources since 2000

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| German-Israel Foundation (GIF) | 1997-2000 |
| Israel Ministry of Science (Natl.Lab. Genome Infrastructure) | 1997-2000, 2001-2003, 2004-2006 |
| Krupp Foundation | 1998-2002 |
| The Goldwasser Foundation | 2002-2005 |
| The Crown Human Genome Center | 1996-present |
| Xennex Inc. | 2003-present |
| U.S. National Institutes of Health (with Prof. Wysoki, USA) | 2006-2009 |
| Tauber Foundation | 2005-2008 |
| Israel Science Foundation (with Prof. Lerer) | 2005-2008 |
| Israel-Korea collaboration | 2005-2007 |

Selected publications

Aloni, R., Olender, T. and Lancet, D. Ancient Genomic Architecture for Mammalian Olfactory Receptor Clusters. *Genome Biol.* (2006)1;7(10):R88[Epub ahead of print].

Menashe, I., Aloni, R. and Lancet, D. A probabilistic classifier for olfactory receptor pseudogenes. *BMC Bioinformatics*. 29;7:393 (2006).

Feldmesser, E., Olender, T., Khen, M., Yanai, I., Ophir, R. and Lancet, D. Widespread ectopic expression of olfactory receptor genes. *BMC Genomics*. 7:121 (2006).

Olender, T., Feldmesser, E., Atarot, T., Eisenstein, M. and Lancet, D. The olfactory receptor universe – from whole genome analysis to structure and evolution. *Genet Mol Res*. 3(4):545-53 (2004).

Olender, T., Fuchs, T., Linhart, C., Shamir, R., Adams, M., Kalush, F., Khen, M. and Lancet, D. The Canine Olfactory Subgenome. *Genomics*. 83:361-372 (2004).

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Menashe, I., Man, O., Lancet, D. and Gilad, Y. Different noses for different people. *Nature Genetics*. 34(2): 143-144 (2003).

Safran, M., Chalifa-Caspi, V., Shmueli, O., Olender, T., Lapidot, M., Rosen, N., Shmoish, M., Peter, Y., Glusman, G., Feldmesser, E., Adato, A., Peter, I., Khen, M., Atarot, T., Groner, Y. and Lancet, D. Human Gene-Centric Databases at the Weizmann Institute of Science: GeneCards, UDB, CroW 21 and HORDE. *Nucleic Acids Research*, 31(1):142-146 (2003).

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Menashe, I., Man, O., Lancet, D. and Gilad, Y. Population differences in haplotype structure within a human olfactory receptor gene cluster. *Human Molecular Genetics*, 11(12): 1381-1390 (2002).

Caticha, N., Palo Tejada, J.E., Lancet, D. and Domany, E. Computational Capacity of an Odorant Discriminator: the Linear Separability of Curves. *Neural Computation*. 14:2201-2220 (2002).

Rosenwald, S., Kafri, R. and Lancet, D. Test of a statistical model for molecular recognition in biological repertoires. *Journal of Theoretical Biology*, 216:327-336 (2002).

Carmel, L., Harel, D. and Lancet, D. Estimating the size of the olfactory repertoire. *Bulletin of Mathematical Biology*, 63:1063-1078 (2001).

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Lapidot, M., Pilpel, Y., Gilad, Y., Falcovitz, A., Haaf, T. and Lancet, D. Mouse-human Orthology relationships in an Olfactory Receptor Gene Cluster. *Genomics*, 71:296-306 (2001).

Fuchs, T., Glusman, G., Horn-Saban, S., Lancet, D. and Pilpel, Y. The Human Olfactory Subgenome: from sequence to structure and evolution. *Human Genetics* 108 (1):1-13 (2001).

Sharon, D., Gilad, Y., Glusman, G., Khen, M., Lancet, D. and Kalush, F. Identification and Characterization of Coding Single-nucleotide Polymorphisms within a Human Olfactory Receptor Gene Cluster. *Gene*, 260(1-2): 87-94 (2000).

Glusman, G., Bahar, A., Sharon, D., Pilpel, Y., White, J. and Lancet, D. The Olfactory receptor gene superfamily: data mining, classification and nomenclature. *Mammalian Genome*, 11:1016-1023 (2000).

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